

**Abstract**

In a WDM optical communication system that includes a plurality of nodes interconnected by communication links, a node is provided that includes a first plurality of transponders each generating and/or receiving an information-bearing optical signal at a different channel wavelength from one another. An optical coupling arrangement, which may include one or more reconfigurable optical switches, transfers the channel wavelengths between a link connected to the node and the first plurality of transponders. The arrangement is adaptable to reconfigure its operational state to selectively direct different ones of the channel wavelengths from the link to different ones of the transponders without disturbing the optical path through the node traversed by any other channel wavelengths. A communications and configuration arrangement is provided, which transfers data identifying the respective channel wavelengths at which the transponders operate from the transponders to the optical coupling arrangement. In response to the transferred data, the communications and configuration arrangement reconfigures the operational state of the optical coupling arrangement.